

What is claimed is:

[Claim 1] A Braille display assembly comprising:

a plurality of individual Braille cells; and
a backplane adapted to receive the plurality of Braille cells, the backplane selected to maintain each of the plurality of individual Braille cells in a predetermined position independent of the positioning of the other cells.

[Claim 2] The Braille display assembly of claim 1, wherein the backplane further comprises:

a plurality of sockets mounted on a bottom side of the backplane in depending relation to the bottom side of the backplane and in spaced relation to one another; and
each socket adapted to receive an individual Braille cell.

[Claim 3] The Braille display assembly of claim 1, wherein the backplane further comprises:

a socket positioned at a first edge of the backplane; and
a connector positioned at a second edge of the backplane.

[Claim 4] The Braille display assembly of claim 1, wherein the backplane further comprises control circuitry to interface with the plurality of individual Braille cells.

[Claim 5] The Braille display assembly of claim 1, wherein the backplane forms a top wall of a frame, the display assembly further comprising:

a bottom wall of the frame;
an angle wall having a first part disposed in abutting relation to a leading edge of the backplane, the first part of the angle wall being coplanar with the backplane;
a plurality of sets of tactile pin holes formed in the first part of the angle wall, each tactile pin being adapted to slideably receive a tactile pin; and
the angle wall having a second part depending from a leading edge of the first part, the second part having a lower end disposed in abutting relation to a leading edge of the bottom wall of the frame.

[Claim 6] The Braille display assembly of claim 5, further comprising:

an upstanding flat wall disposed in abutting relation to a second longitudinal edge of the frame bottom wall;
a projection protruding from a trailing end of each of the plurality of Braille cells;
a plurality of slots formed along the extent of the upstanding flat wall;
each slot of the plurality of slots adapted to receive the projection of an associated Braille cell;
a corresponding plurality of grooves formed integral to the backplane, each groove formed in the backplane adapted to receive a leading end of a Braille cell along a top edge thereof; and

each slot formed in the upstanding flat wall and each groove formed in the backplane cooperating with one another to stabilize each Braille cell of the plurality of Braille cells.

[Claim 7] The Braille display assembly of claim 6, wherein the frame bottom wall further comprises:

a plurality of grooves formed in the frame bottom wall, each groove adapted to receive a leading end of a Braille cell along a bottom edge thereof; and
each of the plurality of grooves and each slot formed in the upstanding flat wall and each groove formed in the backplane cooperating with one another to stabilize each Braille cell of the plurality of Braille cells.

[Claim 8] The Braille display assembly of claim 7, wherein the frame bottom wall further comprises a plurality of deformable strip gaskets positioned perpendicular to the direction of the plurality of grooves.

[Claim 9] The Braille display assembly of claim 5, further comprising:
the plurality of Braille cells further comprising a plurality of piezoelectric reeds extending toward the angle wall in a staircase configuration having a common bending plane;
a plurality of tactile pins, each of the plurality of tactile pins associated with each of the plurality of piezoelectric reeds such that the bending of the piezoelectric reed moves the associated tactile pin in the vertical direction through the associated tactile pin hole.

[Claim 10] The Braille display assembly of claim 9, wherein the each of said plurality of tactile pins are formed independently of one another.

[Claim 11] The Braille display assembly of claim 9, wherein each of the plurality of tactile pins are formed in connected relation to one another forming a set of tactile pins so that one set of tactile pins is adapted to be associated with one Braille cell.

[Claim 12] The Braille display assembly of claim 5, further comprising:
a plurality of cursor routing buttons, each of the plurality of cursor routing buttons associated with each of the plurality of Braille cells; and
the plurality of cursor routing buttons in circuit communication with the backplane.

[Claim 13] The Braille display assembly of claim 5, further comprising:
a plurality of navigation buttons, each of the plurality of navigation buttons associated with each of the plurality of Braille cells; and
the plurality of navigation buttons in circuit communication with the backplane.

[Claim 14] The Braille display assembly of claim 1, further comprising:
a cell cap providing a common tactile surface for the plurality of Braille cells; and

the cell cap being releasably engaged to the backplane.

[Claim 15] The Braille display assembly of claim 14, wherein the cell cap further comprises:

a plurality of tactile pin holes formed in the cell cap, each tactile pin hole being adapted to slideably receive a tactile pin.

[Claim 16] The Braille display assembly of claim 14, wherein the cell cap further comprises:

a plurality of button access holes, each button access hole being adapted to receive one of a plurality of control buttons.

[Claim 17] The Braille display assembly of claim 5, further comprising:

a cell cap providing a common tactile surface for the plurality of Braille cells; the cell cap being releasably engaged to the backplane;
a plurality of tactile pin holes formed in the cell cap, each tactile pin hole being adapted to slideably receive a tactile pin; and
each of the plurality of tactile pin holes formed in the cell cap positioned to be aligned with each of the plurality of sets of tactile pin holes formed in the first part of the angle wall, the combination of the plurality of tactile pin holes formed in the cell cap and the plurality of tactile holes formed in the first part of the angle wall adapted to slideably receive a tactile pin.

[Claim 18] The Braille display assembly of claim 16, wherein the plurality of control buttons are releasably engaged to the underside of the cell cap.

[Claim 19] The Braille display assembly of claim 5, wherein the bottom wall of the frame is fabricated of an insulative material.

[Claim 20] The Braille display assembly of claim 3, wherein the Braille display assembly is a first Braille display assembly and the socket of the first Braille display assembly is adapted to receive a connector of a second Braille display assembly, such that a plurality of individual Braille display assemblies are secured in circuit communication to provide a multiple line Braille display.

[Claim 21] The Braille display assembly of claim 20, further comprising:

an end cap adapted to removably engage with the socket of a Braille display in a multiple line Braille display; and
a resistive element integral to the end cap for identifying the Braille display as the last of the plurality of individual Braille displays composing the multi line Braille display.

[Claim 22] A Braille display assembly comprising:

a plurality of individual Braille cells;
a substantially rectangular housing;

a backplane forming a portion of a top wall of the rectangular housing, the backplane adapted to receive a plurality of Braille cells;
the rectangular housing selected to maintain each of the plurality of individual Braille cells in a predetermined position independent of the positioning of the other cells;
a plurality of sets of tactile pin holes formed in the top wall of the rectangular housing, each tactile pin being adapted to slideably receive a tactile pin;
a plurality of control buttons positioned adjacent the top wall and in circuit communication with the backplane;
a cell cap providing a common tactile surface for the plurality of Braille cells; and
the cell cap being releasably engaged to the top wall of the rectangular housing.

[Claim 23] The Braille display assembly of claim 22, further comprising:

a socket positioned at the first edge of the backplane;
a connector positioned at the second edge of the backplane; and
wherein the Braille display assembly is a first Braille display assembly and the socket of the first Braille display assembly is adapted to receive a connector of a second Braille display assembly, such that a plurality of individual Braille display assemblies are secured in circuit communication to provide a multiple line Braille display.

[Claim 24] The Braille display assembly of claim 23, further comprising:

an end cap adapted to removably engage with the socket of a Braille display in a multiple line Braille display; and
a resistive element integral to the end cap for identifying the Braille display as the last of the plurality of individual Braille displays composing the multi line Braille display.

[Claim 25] A monolithic cap adapted for use in a tactile display assembly, the monolithic cap comprising a housing, the housing including a plurality of individual tactile cell apertures, each of said plurality of tactile cell apertures adapted to receive a single tactile cell pin.